

The following listing of claims will replace all prior versions, and listings, of claims in the present application.

LISTING OF THE CLAIMS:

Claim 1. (Currently Amended) A data communication apparatus comprising:

means for obtaining an index representative of a state of a network; and

means for controlling a bit rate according to a proportional process and an integral process on the difference between a target value for said index and an observed value of said index, said means for controlling including a multiplier for multiplying an observed value of data buffered in a network by a constant value and outputting a product which is added to a product of said integral process.

Claim 2. (Original) A data communication apparatus according to claim 1, wherein said index comprises an amount of data buffered in said network.

Claim 3. (Original) A data communication apparatus according to claim 2, further comprising:

means for calculating a round-trip time over said network; and

means for calculating said amount of data using said round-trip time.

Claim 4. (Original) A data communication apparatus according to claim 1, further comprising:

means for transmitting transmission data with serial numbers assigned thereto in a sequence of the transmitted data;

means for returning a reception report to which the serial numbers assigned to received data are assigned; and

means for receiving said reception report and using information about data transmitted after said transmission data is transmitted until said reception report is received, as said observed value of said amount of data.

Claim 5. (Original) A data communication apparatus according to claim 2, further comprising:

means for transmitting transmission data with serial numbers assigned thereto in a sequence of the transmitted data;

means for returning a reception report to which the serial numbers assigned to received data are assigned; and

means for receiving said reception report and using information about data transmitted after said transmission data is transmitted until said reception report is received, as said observed value of said amount of data.

Claim 6. (Original) A data communication apparatus according to claim 4, wherein said information about the transmitted data comprises an amount of the transmitted data.

Claim 7. (Original) A data communication apparatus according to claim 5, wherein said information about the transmitted data comprises an amount of the transmitted data.

Claim 8. (Original) A data communication apparatus according to claim 1, for transmitting data of audio and video signals encoded in real-time at a bit rate which is controlled based on the state of the network.

Claim 9. (Original) A data communication apparatus according to claim 2, for transmitting data of audio and video signals encoded in real-time at a bit rate which is controlled based on the state of the network.

Claim 10. (Original) A data communication apparatus according to claim 3, for transmitting data of audio and video signals encoded in real-time at a bit rate which is controlled based on the state of the network.

Claim 11. (Original) A data communication apparatus according to claim 4, for transmitting data of audio and video signals encoded in real-time at a bit rate which is controlled based on the state of the network.

Claim 12. (Original) A data communication apparatus according to claim 1, for preparing a plurality of data of audio and video signals encoded at different bit rates and transmitting said data at a bit rate determined based on the result of a bit rate control process.

Claim 13. (Original) A data communication apparatus according to claim 2, for preparing a plurality of data of audio and video signals encoded at different bit rates and transmitting said data at a bit rate determined based on the result of a bit rate control process.

Claim 14. (Original) A data communication apparatus according to claim 3, for preparing a plurality of data of audio and video signals encoded at different bit rates and transmitting said data at a bit rate determined based on the result of a bit rate control process.

Claim 15. (Original) A data communication apparatus according to claim 4, for preparing a plurality of data of audio and video signals encoded at different bit rates and transmitting said data at a bit rate determined based on the result of a bit rate control process.

Claim 16. (Original) A data communication apparatus according to claim 1, wherein said means for controlling the bit rate comprises means for using, as said bit rate, the sum of a value proportional to the difference between the target value for said index and the observed value of said index, and a value produced by multiplying an integral of said difference by a constant.

Claim 17. (Original) A data communication apparatus according to claim 2, wherein said means for controlling the bit rate comprises means for using, as said bit rate, the sum of a value proportional to the difference between the target value for said index and the observed value of said index, and a value produced by multiplying an integral of said difference by a constant.

Claim 18. (Original) A data communication apparatus according to claim 3, wherein said means for controlling the bit rate comprises means for using, as said bit rate, the sum of a value proportional to the difference between the target value for said index and the observed value of said index, and a value produced by multiplying an integral of said difference by a constant.

Claim 19. (Original) A data communication apparatus according to claim 4, wherein said means for controlling the bit rate comprises means for using, as said bit rate, the sum of a value proportional to the difference between the target value for said index and the observed value of said index, and a value produced by multiplying an integral of said difference by a constant.